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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,367	01/22/2002	James D. Crapo	2661-22	6992

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
WANG, SHENGJUN	
ART UNIT	**PAPER NUMBER**
1617	

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/051,367	CRAPO ET AL.	
	Examiner	Art Unit	
	Shengjun Wang	1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5,7,9,29 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,7,9,29 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Receipt of applicants' amendments and remarks submitted August 16, 2006 is acknowledged.

Double Patenting Rejection

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 5, 7, 9 and 29-30 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9-32 of U.S. Patent No. 6,916,799, in view of Kobayashi et al. '799 claims a method of protecting cell from oxidant, or treating patient with a pathological condition resulting from oxidant-induced toxicity by using N-alkylpyridine substituted porphyrin, wherein the alkyl group is C1-C8. The effective amounts of the compound employed are defined in the range of 0.01 to 100 mg/kg/day, with a preferred range of 0.1 to 10 mg/kg/day (column 8, lines 14-35), which are essentially identical as herein required for the claimed method (see page 10 of the specification).

3. '799 does not expressly teach for treating cancers, or employment of the particular compound, 10113,which is N-ethylpyridin substituted porphrin.

4. However, Kobayashi teaches that human cancer patient usually suffer from oxidative stress. Kobayashi et al. further teaches to employ superoxide dismutase mimetic for treating cancer patient to relieve the oxidative stress.

Therefore, it would have been prima facie obvious to a person of ordinary skill in the art, at the time the claimed the invention was made, to use the claim method for treating cancer patient.

A person of ordinary skill in the art would have been motivated to use the claim method for treating cancer patient because cancer patients are known to have oxidative stress and superoxide dismutase mimetic are known to be useful for treating cancer patient for relief of such oxidative stress. As to the employment of the particular compound, 10113, it is seen to be a selection from amongst equally suitable material and as such obvious. Ex parte Winters 11 USPQ 2nd 1387 (at 1388) (R is ethyl group in 10113 vs. R is C1-C8 in the claims of '799).

Claim Rejections 35 U.S.C. 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 5, 7, 9, and 29-30 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treating cancer patients by modulating levels of oxidants, does not reasonably provide enablement for inhibiting all cancer growth all the compounds herein defined, with the exception of inhibiting adenocarcinoma of lung, breast, prostate and colon with 10113 (see the drawings and experiments, and page 8). The specification does not

enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The instant specification fails to provide information that would allow the skilled artisan to practice the instant invention without undue experimentation. Attention is directed to In re Wands, 8 USPQ 2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factor to consider when assessing if a disclosure would have required undue experimentation. The court recited eight factors:

1) the quantity of experimentation necessary,

2) the amount of direction or guidance provided,

3) the presence of absence of working examples,

4) the nature of the invention,

5) the state of the prior art,

6) the relative skill of those in the art,

7) the predictability of the art, and

8) the breadth of the claims.

The nature of the invention: The instant invention pertains to method of treating cancer generally, including inhibiting cancer cell growth, with the substituted porphyrins herein.

The relative skill of those in the art: the relative skill of those in the art is high.

The breadth of the claims: the instant claims are deemed very broad since these claims read on a method of inhibiting the growth of any forms of cancers with any of the compounds encompassed by the general formula herein.

The predictability of the art: The art for treating cancers are unpredictable.

The state of the prior art: While there are many anticancer drugs known to be effective in treatment of cancers. There is no known anti-cancer drug that is effective in treating all types of cancers. Normally, one anti-cancer drug may be effective to one or two kinds of cancers, but not effective against the others. Drugs with the same anticancer mechanism may be effective against different kind of cancers. See, e.g., Cecil Textbook of Medicine, part XIV Oncology, particularly, pages 1062-1074, wherein current state of medical therapy for cancer is described. All the known anticancer drugs are limited to no more than a few kinds of cancers. These facts further illustrate the unpredictability of medical therapy for cancers.

The presence or absence of working examples: Only limited examples shows that compound 10113 is effective to inhibiting adenocarcinoma cell growth. No example show that compound 10113 is effective against other cancers. No example shows any other compounds herein would be effective against any or all of cancers.

The amount of direction or guidance provided: the application provides no guidance, or direction as to the use of the compounds for inhibiting all cancer growth. It is noted that the examples provided in the application are neither exhaustive, nor provide rationale for extrapolate the efficacy to all cancers for all the compounds herein. The pharmaceutical art is unpredictable, requiring each embodiment to be individually assessed of physiological activity.

Therefore, the skilled artisan could not practice the claimed invention without an undue experimentation.

Claim Rejections 35 U.S.C. 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 5, 7, 9 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fridovich (WO 99/23097, IDS), in view of Kobayashi

9. Fridovich teaches pyridin substituted porphyrin herein as superoxide dismutase mimetic and the method of using the same for protecting cell from oxidant, or treating patients with a pathological condition resulting from oxidant-induced toxicity. Compound 10113 is particularly disclosed see, particularly, example III at pages 22-23. The effective amounts of the mimetic employed is in the range of 0.01 to 100 mg/kg/day, with a preferred range of 0.1 to 10 mg/kg/day. See, pages 18, which are essentially identical as herein required for the claimed method (see page 10 of the specification).

10. Fridovich does not expressly teach for treating cancers, or employment of the particular compound, 10113.

11. However, Kobayashi teaches that human cancer patient usually suffer from oxidative stress. Kobayashi et al. further teaches to employ superoxide dismutase mimetic for treating cancer patient to relieve the oxidative stress.

Therefore, it would have been prima facie obvious to a person of ordinary skill in the art, at the time the claimed the invention was made, to use the claim method for treating cancer patient.

A person of ordinary skill in the art would have been motivated to use the claim method for treating cancer patient because cancer patients are known to have oxidative stress and superoxide dismutase mimetic are known to be useful for treating cancer patient for relief of such oxidative stress. As to the employment of the particular compound, 10113, it is seen to be a selection from amongst equally suitable material and as such obvious. Ex parte Winters 11 USPQ 2nd 1387 (at 1388) (R is ethyl group in 10113 vs. R is C1-C8 in the claims of '125).

12. Claims 1, 5, 7, 9 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. in view of Bloodsworth et al.

13. Kobayashi et al. teaches that mimetic of superoxide dismutase are useful for treating human cancer patients. See, particularly, the abstract.

14. Kobayashi et al. do not teach expressly to employ compound 10113 herein as the mimetic of superoxide dismutase.

15. However, Bloodsworth et al. teaches that 10113 is a known superoxide dismutase mimetic. See, particularly the abstract.

Therefore, it would have been prima facie obvious to a person of ordinary skill in the art, at the time the claimed the invention was made, to employ 10113 as the superoxide dismutase mimetic in the method for treating cancer patient as disclosed by Kobayashi et al.
A person of ordinary skill in the art would have been motivated to employ 10113 as the superoxide dismutase mimetic in the method for treating cancer patient as disclosed by

Kobayashi et al. because 10113 is a known super oxide dismutase mimetic. The employment of 10113 as superoxide dismutase mimetic is seen to be a selection from amongst equally suitable material and as such obvious. Ex parte Winters 11 USPQ 2nd 1387 (at 1388).

Response to the Arguments

Applicants' amendments and remarks submitted August 16, 2006 have been fully considered, but are not persuasive.

16. Applicants argue that the amendments that define the recited pyridin substituted porphyrin as the ***active agent*** in treating cancer would distinguish the claimed invention from the prior art. Particularly, applicants' argue that the claims as amended are directed to treating cancer, not treating the symptoms of the cancer. In response, the examiner recognized that the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Particularly, the cited references have clearly suggested the benefit of using SOD for treatment of cancer patients. Therefore, the claimed method, comprising the step of administering the known SOD to cancer patients would have been obvious. Note, given broadest interpretation, treating cancer would read on treating the symptoms of the cancer.

17. Applicants further argue that the combination of references fails to provide a reasonable expectation of success. The arguments are not persuasive. Particularly, the "success" is not need to be the "success" envisioned by applicants. Insofar as the method provide some benefit to the cancer patient, such as reduction of oxidative stress as taught by Kabayashi, the method is considered to be success. Note, the envisioned "success" is not in the claims. In response to

applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., inhibiting cancer growth of adenocarcinoma of lung, breast, prostate and colon) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

18. As to the ODP rejections, applicants contend that since cancer treatment and pharmaceutical arts are unpredictable, treating cancer as herein claimed would have not been obvious over the claims in '799 directed to a method of protecting cell from oxidant, or treating patient with a pathological condition resulting from oxidant-induced toxicity by using N-alkylpyridine substituted porphyrin. Again, the claims herein, given the broadest interpretation, would read on treating cancer patients, and would have been obvious over the claims in '799 in view of Kabayashi et al..

19. As to the rejections under 35 U.S.C. 112 first, applicants alleged that the amendments defining the "mimetic of an enzymatic scavenger of reactive oxygen species" is "an active agent" in the treatment of the cancer. "Therefore, after reading the claims as amended, one skilled in the art would immediately understand that the claimed treatment of cancer is dependent upon the activity of the mimetic as an enzymatic scavenger of reactive oxygen species. Because enzymatic scavengers modulate levels of oxidants, Applicants submit that the claims as amended are fully enabled." The examiner respectfully disagrees. Given the broadest interpretation, the claims read on inhibiting the growth of all cancer. The application "does not reasonably provide enablement for inhibiting all cancer growth all the compounds herein

defined, with the exception of inhibiting adenocarcinoma of lung, breast, prostate and colon with 10113 (see the drawings and experiments, and page 8)." See the rejections above.

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shengjun Wang whose telephone number is (571) 272-0632. The examiner can normally be reached on Monday to Friday from 7:00 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan, can be reached on (571) 272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SHENGJUN WANG
PRIMARY EXAMINER

Shengjun Wang
Primary Examiner
Art Unit 1617